

What is claimed is:

1. A method of processing and storing data in a computer system including processor circuitry, and a data storage device, the method comprising the steps of:

storing first and second sets of records on the data storage device, the first and second sets of records being of different data resolutions and corresponding to overlapping periods of time;

operating the processor circuitry to receive data collected over a period of time; and

operating the processor circuitry to update at least one record in each of the stored first and second sets of records with the received data.

2. The method of claim 1,

wherein the first and second sets of records are stored in separate first-in, first-out data structures on the data storage device; and

wherein the step of operating the processor circuitry to update at least one record in each of the stored first and second sets of records, includes the step of replacing a previous record included in each of the first and second data structures.

3. The method of claim 2, further comprising the step of:

allocating fixed amounts of storage space on the data storage device for storing each one of the first and second first-in, first-out data structures used to store the first and second sets of records.

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0 1 4. The method of claim ¹/₂, wherein the first set of
2 records include hourly records and the second set of
3 records includes daily records.

c 1 5. The method of claim ¹/₂, further comprising the step
2 of:
3 periodically collecting network traffic data;
4 storing the collected network traffic data in a
5 buffer; and
6 operating the processor circuitry to retrieve
7 network traffic data from the buffer, the retrieved
8 network traffic data being received by the processor
9 circuitry.

1 6. The method of claim 5,
2 wherein the network traffic data stored in the
3 buffer includes time stamp information indicating the
4 period of time in which the network traffic data was
5 collected; and
6 wherein the step of operating the processor
7 circuitry to update at least one record in each of the
8 stored first and second sets of records includes the step
9 of:
10 examining at least one time stamp included in
11 the buffered network traffic data.

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C 1 7. The method of claim 5, wherein the collected network
2 traffic data includes byte and packet count information
3 associated with each of a plurality of monitored
4 conversations between devices included in the computer
5 system, the step of operating the processor circuitry to

6 update at least one record in each of the stored first
7 and second sets of records including the steps of:
8 updating a record corresponding to a first
9 conversation in the first set of records; and
10 updating a record corresponding to the first
11 conversation the second set of records.

1 8. The method of claim 5,
2 wherein the processor circuitry includes first
3 and second central processing units, and
4 wherein the step of operating the processor
5 circuitry to update at least one record in each of the
6 stored first and second sets of records includes the step
7 of operating the first processor to update the first set
8 of records while operating the second processor to update
9 the second set of records.

1 9. The method of claim 1,
2 wherein the processor circuitry includes first
3 and second central processing units, and
4 wherein the step of operating the processor
5 circuitry to update at least one record in each of the
6 stored first and second sets of records includes the step
7 of operating the first processor to update the first set
8 of records while operating the second processor to update
9 the second set of records.

1 10. The method of claim 5, wherein the computer system
2 further includes a display device, the method further
3 comprising the step of:

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7 the step of generating a database including the step of
8 generating from the information on each different
9 monitored conversation, a different record in each set of
10 the plurality of network traffic data sets.

1 15. The method of claim 14, further comprising the step
2 of storing each of the plurality of network traffic data
3 sets in a different first-in, first-out data structure.

1 16. The method of claim 15, wherein a limited amount of
2 data storage space is used for each of the different
3 first-in, first out data structures, the method further
4 comprising the step of:

5 overwriting the oldest data records in the
6 first-in, first-out data structure used to store one of
7 the network traffic data sets, when the limited amount of
8 data storage space used for said first-in, first-out data
9 structure is filled with records.

1 17. A system for monitoring network traffic data,
2 comprising:

3 a plurality of network traffic data probes for
4 collecting network traffic information;

5 processor circuitry coupled to the network
6 traffic probes for receiving data therefrom; and

7 a data storage device for storing a network
8 traffic database generated by the processor circuitry
9 using data collected by the network traffic data probes,
10 the data storage device including:

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11 a plurality of data structures, each one of the
12 plurality of data structures including network traffic
13 data:

14 a) stored at a different resolution than the
15 resolution at which network traffic data is stored
16 in the other ones of the plurality of data
17 structures; and

18 b) corresponding to a period of time which
19 overlaps the period of time for which network
20 traffic data is stored in the other ones of the
21 plurality of data structures.

1 18. The system of claim 17, wherein each of the
2 plurality of data structures is a first-in, first-out
3 data structure.

1 19. The system of claim ¹⁷18, wherein each one of the
2 plurality of data structures includes a plurality of data
3 records, each data record corresponding to a monitored
4 network conversation.

1 20. The system of claim ¹⁷18, wherein data records are
2 arranged within each individual data structure as a
3 function of the time the conversation to which the record
4 corresponds was monitored.

1 21. The system of claim 20, wherein records which were
2 monitored during the same time interval are grouped
3 together within each individual data structure.

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1 22. The system of claim 21, further comprising:
2 means for modifying at least one network
3 traffic data record included in each one of the plurality
4 of data structures to reflect collected information about
5 an individual network conversation.

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1 23. The system of claim ¹⁷18, further comprising:
2 means for modifying at least one network
3 traffic data record included in each one of the plurality
4 of data structures to reflect collected information about
5 an individual network conversation.

1 24. The system of claim ¹⁷18, wherein the processor
2 circuitry includes a plurality of separate central
3 processing units which operate in parallel.

1 25. The system of claim 24, wherein each one of the
2 plurality of data structures includes a plurality of data
3 records, each data record corresponding to a monitored
4 network conversation.

1 26. The system of claim 24, wherein data records are
2 arranged within each individual data structure as a
3 function of the time the conversation to which the record
4 corresponds was monitored.

1 27. The system of claim 26, wherein records which were
2 monitored during the same time interval are grouped
3 together within each individual data structure.

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1 28. The system of claim 27, further comprising:
2 means for modifying at least one network
3 traffic data record included in each one of the plurality
4 of data structures to reflect collected information about
5 an individual network conversation.

1 29. The system of claim 24, further comprising:
2 means for modifying at least one network
3 traffic data record included in each one of the plurality
4 of data structures to reflect collected information about
5 an individual network conversation.

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